815 KAR 20:071. Storage and installation of Schedule 40, ABS and PVC plastic pipe and fittings.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the method needed for storage, handling and installation of schedule 40, ABS and PVC plastic pipe and fittings. This administrative regulation is being amended because new fittings are now available which allows for expansion when connecting plastic pipe to metal as well as a new means of connecting different kinds of plastic pipe.

Section 1. Storage. (1) Pipe. Pipe shall remain in lifts until ready for use. Lifts shall not be stacked more than three (3) high and shall always be stacked wood-on-wood. Loose pipe shall be stored in racks with a minimum support space of three (3) feet. Pipe shall be shaded but not directly covered when stored outside in high ambient temperatures to provide for free circulation of air and reduce the heat buildup due to direct sunlight exposure.
(2) Fittings. Fittings shall be stored in their original cartons to be kept free of dirt and to reduce the possibility of damage. If possible, fittings shall be stored indoors.
(3) Solvent cement and primers. Solvent cement and primers shall not be exposed to ignition, sparks, open flames or heat during storage and shall not be used beyond their marked shelf life.

Section 2. Handling. Care shall be exercised to avoid rough handling of pipe and fittings. They shall not be dragged over sharp projections, dropped or have heavy objects dropped on them. Pipe ends shall be inspected for cracks in the event of abuse prior to installation. (If transported by truck or trailer, piping shall be reasonably supported.)

Section 3. Installation. (1) Underneath concrete floors. Pipe and fittings shall be laid on stable earth conditions and have four (4) inches of grillage on its bottom, top and sides. If ground is unstable, it shall be removed and the excavation filled with grillage to the underneath side of the piping. Soil or waste pipe shall not be placed in a concrete slab except those pipes that pass vertically through it.
(2) Above concrete floors. Horizontal piping shall be properly aligned and installed without strain. Piping shall not be bent or pulled in position either before or after solvent welds have been made. It shall be supported at intervals not to exceed four (4) feet and at the end of the branches and at the change of direction and shall be so installed as to permit freedom of movement. Vertical piping shall be supported at their bases and all upward movement shall not be restricted. Closet flanges shall be securely fastened to the floor through which it passes.

Section 4. Hangers. Hangers and straps shall be at least one (1) inch wide and shall not compress, distort, cut or abrade the piping to allow free movement at all times.

Section 5. Making Solvent Cement Joints. (1)(a) Cement shall not be thinned. Cement that has thickened shall be discarded. Cement shall not be used beyond its shelf life and shall not be subject to temperatures below thirty (30) degrees Fahrenheit.
(b) Installers shall avoid prolonged breathing of vapors. Prolonged contact with skin is harmful. Install only with adequate ventilation. Avoid contact with eyes and skin. Solvents are also flammable.
(2) Socket fit. ABS and PVC fittings are manufactured to a close tolerance. Joints shall be an interference fit between pipe and fittings. Additional cement shall not be permitted for the correction of

loosely fitted joints.

(3) Joining techniques. Piping shall be cut square with a saw or pipe cutter designed especially for plastic pipe. Pipe and fittings shall be protected from serrated holding devices or abrasions.

(a) Burrs shall be removed from both inside and outside of the pipe. Dust, dirt and moisture shall be removed from the surfaces that shall be cemented.

(b) Solvent chemical cleaner recommended by the company whose product is being installed shall be applied inside the fitting and on the outside of the piping shall be joined.

(c) A paint brush shall be used to apply the solvent cement in a moderate, even coating in the fitting socket as well as covering the pipe on the joining surfaces.

(d) Joints shall be assembled as quickly as possible before the cement dries. Insert the piping into the fitting socket turning the pipe slightly to ensure even distribution to the cement. Hold the piping in a firm position so it does not "back out" of the joint.

(e) Remove excess solvent cement from the exterior of the joint with a clean dry cloth. The joint shall not be handled for a two (2) minute period. A fifteen (15) minute period shall be allowed for the joint to develop hanging strength.

(f) A Cemented pipe joint shall not be made in conditions of excessive moisture (ninety (90) percent humidity level) or when the temperature is below forty (40) degrees or above ninety (90) degrees Fahrenheit.

Section 6. Commingling of Plastic Pipe. Plastic pipe shall not be commingled except through the use of male and female adapters or other transition fittings approved by administrative regulation of the office.

Section 7. Mixing of Plastic and Metal Piping. Plastic and metal piping shall discharge into one another by the use of proper fittings and adapters.

Section 8. Thermal Expansion. Each plumbing installation shall be engineered and designed giving due consideration to the expansion characteristics of the material. Expansion tables for both PVC and ABS schedule 40 plastic piping are as follows:

PVC-DWV TYPE 1 THERMAL EXPANSION TABLE							
Chart Shows Length Change in Inches vs. Degrees Temperature Change							
Lg. Ft.	40° F	50° F	60° F	70° F	80° F	90° F	100°F
20	278	.348	.418	.487	.557	.626	.696
40	.557	.696	.835	.974	1.114	1.235	1.392
60	.835	1.044	1.253	1.462	1.670	1.879	2.088
80	1.134	1.392	1.670	1.949	2.227	2.506	2.784
100	.392	1.740	2.088	2.436	2.784	3.132	3.480

ABS-DWV TYPE 1 THERMAL EXPANSION TABLE

Chart Shows Length Change in Inches vs. Degrees Temperature Change							
Lg. Ft.	40° F	50° F	60° F	70° F	80° F	90° F	100°F
20	0.536	0.670	0.80	0.938	1.072	1.206	1.340
40	1.070	1.340	1.610	1.880	2.050	2.420	2.690
60	1.609	2.010	2.410	2.820	3.220	3.620	4.020
80	2.143	2.680	3.220	3.760	4.290	4.830	5.360
100	2.680	3.350	4.020	4.700	5.360	6.030	6.700

(7 Ky.R. 525; 767; eff. 3-4-81; Am. 16 Ky.R. 2764; 17 Ky.R. 1098; eff. 8-22-90; 19 Ky.R. 1190; 1555; eff. 1-4-93; TAm eff. 8-9-2007; 35 Ky.R. 2591; 36 Ky.R. 87; eff. 7-29-2009.)